

Serial No. 10/806,318

OCT 13 2006

Docket No. 1293.1278C4

IN THE CLAIMS:

Please **CANCEL** claims 6, 9 and 15 without prejudice or disclaimer, and **AMEND** claims 1-5, 7, 10-14, and 16-20 in accordance with the following:

1. **(CURRENTLY AMENDED)** An apparatus for forming a recording pattern and an erase pattern alternatively and sequentially on an optical recording medium in response to input data having a first level and a second level, respectively, in an optical recording apparatus, comprising:

a recording waveform generating unit generating a recording waveform which includes a ~~first multi-pulse having a plurality of first pulses to form the recording pattern in response to the first level of the input data and a second multi-pulse having a plurality of second pulses including~~ a leading pulse and a multi-pulse having corresponding high and low power levels to form the erase pattern in response to the second level of the input data, wherein a power level of ~~a the~~ the ~~leading one-pulse of the second pulses of the erase pattern is at the~~ low power level of the ~~second multi-pulse and a power level of a pulse period between an end point of the second~~ pulses erase pattern and a start point of a leading one of the first pulses of the recording pattern is at the ~~high power level of the second multi-pulse.~~

2. **(CURRENTLY AMENDED)** The apparatus of claim 1, wherein the recording waveform generating unit generates a cooling pulse as a portion of the ~~first multi-pulses forming another recording pattern preceding the erase pattern and another portion of the second multi-pulse erase pattern before the leading pulse, and the cooling pulse has a power below the low power level of the multi-pulse.~~

3. **(CURRENTLY AMENDED)** The apparatus of claim 1, wherein the first pulses ~~of the first multi-pulse~~ each have a first duty cycle and a first amplitude, and the second pulses ~~of the second multi-pulse~~ each have a second duty cycle different from the first duty cycle and a second amplitude different from the first amplitude.

4. **(CURRENTLY AMENDED)** The apparatus of claim 1, further comprising:
a pickup unit forming a mark corresponding to the recording pattern on the optical disc in response to the first pulses ~~of the first multi-pulse~~ and erasing another mark to form a space corresponding to the erase pattern on the optical disc in response to the second pulses ~~of the~~

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second multi-pulse.

5. (CURRENTLY AMENDED) An apparatus for forming a recording pattern and an erase pattern alternatively and sequentially on an information storage medium in response to input data having a first level and a second level, respectively, in a recording apparatus, comprising:

a recording waveform generating unit generating a recording waveform which comprises the recording pattern corresponding to the first level of the input data and having first pulses, the erase pattern corresponding to the second level of the input data and having a leading pulse and a multi-pulse having corresponding high and low power levels ~~corresponding to the second level of the input data~~, and a cooling pulse concatenating the recording and erase patterns, wherein a power level of ~~a the leading pulse of the erase pattern is at the~~ low power level of the multi-pulse and a power level of a pulse period between an end point of the erase pattern multi-pulse and a start point of the recording pattern first pulses is ~~a the~~ high power level of the multi-pulse.

6. (CANCELLED)

7. (CURRENTLY AMENDED) An apparatus for forming a recording pattern and an erase pattern alternatively and sequentially on an optical recording medium in response to input data having a first level and a second level, respectively, in an optical recording apparatus, comprising:

a recording waveform generating unit which receives the input data and generates a recording waveform which includes ~~a first multi-pulse having a plurality of first pulses to form the recording pattern in response to the first level of the input data and a second multi-pulse having a plurality of second pulses including a leading pulse and a multi-pulse having corresponding high and low power levels to form the erase pattern in response to the second level of the input data, a the leading pulse first one of the second pulses for the erase pattern being at the low power level of the multi-pulse and a power level of a period between an end point of the multi-pulse and a start point of the first pulses being the high or low power level of the multi-pulse;~~ and

a pickup forming a mark or a space by using the generated recording and erasing waveforms.

8. (PREVIOUSLY PRESENTED) The apparatus of claim 1, wherein the recording waveform generating unit generates the recording waveform using the input data modulated according to a Run Length Limited (RLL)(1, 7) method.

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9. (CANCELLED)

10. (CURRENTLY AMENDED) ~~The apparatus of claim 9~~ An apparatus for forming a recording pattern and an erase pattern alternatively and sequentially on an optical recording medium in response to input data having a first level and a second level, respectively, in an optical recording apparatus, comprising:

a recording waveform generating unit generating a recording waveform which includes first pulses to form the recording pattern in response to the first level of the input data and second pulses including a leading pulse and a multi-pulse having corresponding high and low power levels to form the erase pattern in response to the second level of the input data, wherein the a power of the first leading pulse one of the second multi-pulses of the erase pattern is equal to the a power of the a first period between an end point of the second pulses and a start point one of the first pulses multi-pulses of the another recording pattern.

11. (CURRENTLY AMENDED) The apparatus of claim 8 10, wherein the power of the first leading pulse one of the multi-pulses of the erase pattern is other than the power of the low power level of the multi-pulse the first one of the multi-pulses of the another recording pattern.

12. (CURRENTLY AMENDED) The apparatus of claim 8 10, wherein the power of the leading pulse is the high power level of the multi-pulse the multi-pulse of the erase pattern has a first pulse power and a second pulse power greater than the first pulse power.

13. (CURRENTLY AMENDED) The apparatus of claim 10, wherein the multi-pulse of the erase pattern has a first pulse power and a second pulse power greater than the first pulse power, and the power of the first one of the multi-pulses leading pulse of the erase pattern is equal to the first pulse power.

14. (CURRENTLY AMENDED) The apparatus of claim 11, wherein the multi-pulse of the erase pattern has a first pulse power and a second pulse power greater than the first pulse power, and the power of the period before a first one of the first multi-pulses of the recording pattern is equal to the first pulse power.

15. (CANCELLED)

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16. (CURRENTLY AMENDED) The apparatus of claim 1, wherein the recording waveform further comprises a cooling pulse concatenating and included in the recording and erase patterns and having a cooling power level less than ~~a-the power level of a last one of the first pulses of the first multi-pulse of the recording pattern and a-the leading pulse power of a first pulse of the second pulses~~ multi-pulse of the erase pattern.

17. (CURRENTLY AMENDED) The apparatus of claim 2, wherein the cooling pulse has a cooling power level less than the power of a last one of the first pulses ~~of the first multi-pulse of the recording pattern and a-the power level of a-the leading~~ first pulse of the second pulses ~~multi-pulse of the erase pattern~~.

18. (CURRENTLY AMENDED) The apparatus of claim 5, wherein the cooling pulse has a cooling power level less than a recording power level of the recording pattern and ~~a-the power level of a-the leading pulse~~ first pulse of the multi-pulse of the erase pattern.

19. (CURRENTLY AMENDED) An apparatus for forming a recording pattern and an erase pattern alternatively and sequentially on an optical recording medium in response to input data having a first level and a second level, respectively, in an optical recording apparatus, comprising:

a recording waveform generating unit generating a recording waveform which includes a ~~first multi-pulse having a plurality of first pulses to form the recording pattern in response to the first level of the input data, and a second multi-pulse having a plurality of second pulses~~ including a leading pulse and a multi-pulse having corresponding high and low power levels to form the erase pattern in response to the second level of the input data, wherein ~~and having a power level of a-the leading pulse leading one of the second pulses of the erase pattern is set to beat a-the high power level of the second multi-pulse and a power level of pulse a period between an end point of the erase pattern second pulses and a start point of a-leading one of the first pulses of the recording pattern is set to beat~~ a-the high power level of the second multi-pulse.

20. (CURRENTLY AMENDED) An apparatus for forming a recording pattern and an erase pattern alternatively and sequentially on an optical recording medium in response to input data having a first level and a second level, respectively, in an optical recording apparatus,

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comprising:

a recording waveform generating unit generating a recording waveform which includes a ~~first multi-pulse having a plurality of first pulses to form the recording pattern in response to the first level of the input data ,and a second multi-pulse having a plurality of second pulses~~ including a leading pulse and a multi-pulse having corresponding high and low power levels to form the erase pattern in response to the second level of the input data, wherein a power level of ~~a the leading pulse second-pulse of the erase pattern is set to beat a the low power level of the second-multi-pulse and a power level of a period pulse between an end point of the second pulses erase pattern and a start point of a leading one of the first pulses of the recording pattern~~ is set to beat the a low power level of the second-multi-pulse.